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ACF/NYU NEWSLETTER

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UPDATE: ACF SYSTEMS, SOFTWARE, DOCUMENTATION

For CDC CYBER Users

Operating system upgrade is scheduled tentatively for February. CDC has released Version 2.2 of NOS, the CYBER's operating system. We are examining NOS 2.2 so as to estimate the amount of work needed to install it and to integrate it with other non-CDC software. At present, it looks as though the upgrade may occur during mid-winter recess (January 16 through January 21) or at some time before mid-February. These plans are tentative, however; we will publish a more definite schedule in CYBER "News".

NOS 2.2 will be "upward compatible" for our users: what you've been doing under NOS 2.1 will also work under NOS 2.2. In addition, however, NOS 2.2 will provide a number of attractive and useful features. These include screen-formatting capabilities and a full-screen editor; project-wide prologues and epilogues, through which master users can design computing environments for all users within a particular project; selection by users of the class of service the system is to assign to their jobs; and a new facility which will

store and handle online documentation -- both yours and ours -- with indexing and keyword search. For a preview of these, see the article on page 13.

The CYBER's operating system was updated to Version 2.1 (PSR 580) in July 1983. Many of the differences between Versions 2.1 and 2.0, the previous version of NOS, are described in the online writeup "IMPACT1" and in the June 1983 issue of the Newsletter. (A copy of the latter article is available in the online writeup "NOS2DOC".)

CYBER users can now report problems to "COMMENT". CYBER users can submit reports of software bugs and problems by means of the online "MAIL" utility. To submit a report, you "MAIL" it to the username, "COMMENT". If the problem is of interest to the general user community, an answer will be published in CYBER "News". If not, you will receive a reply, via "MAIL", from the appropriate ACF staff member. For more information on the "MAIL" utility, see the ACF writeup "QMAIL".

New utility, R, will save you time typing at the terminal. A new CDC utility, R, will help you cut down on some of the time that you spend typing interactive commands during a session. The R utility allows you to modify the text of a command that you have entered previously within a terminal session, rather than retyping the entire command. R then executes the newly altered command for you. It is helpful in those instances in which, during the course of a terminal session, you must enter several commands that are fairly similar to each other. It can also be used to correct mistyped commands. R is simple to use. For instructions, see the ACF writeup "RDOC".

WHATIS provides online explanation of error messages. WHATIS, a program which gives you online help in understanding error messages from a variety of software products on the CYBER, has been made faster and has been expanded in scope and organization. The locally-produced program first became available earlier this semester. It now also provides help with error messages associated with CMM (Common Memory Manager) and CRM (CYBER Record Manager), with FTN and FTN5. For a description of WHATIS, and instructions as to its use, type the command "WHATIS" and press the RETURN key. For an index of the products whose error messages are included in the WHATIS database, type "WHATIS,INDEX".

Software updates: M77, IMSL, MULTISCALE, and TSP. The M77 compiler and its library were updated to Version 2.4. The new version corrects several outstanding bugs and has enhanced error-diagnostic messages. CHARACTER move and CHARACTER substring routines were rewritten to increase execution speed.

Many of the corrections brought about by this release result from the submission of M77 to the Federal Software Testing Center. With some exceptions, M77 now passes their conformance tests for 1978 FORTRAN compilers. For more about M77, the CYBER's fast FORTRAN compiler, see the ACF writeup, "QM77".

IMSL, a library of 512 subroutines for statistical and mathematical applications, has been updated from Version 9.0 to Version 9.1. A list of the subroutines affected, and the reasons for their update, has been added to the online writeup "IMSL". That writeup will also provide a general description of IMSL and will point you to further documentation.

International Educational Services has released Version II of MULTISCALE, a set of programs for multidimensional scaling by the method of maximum likelihood. MULTISCALE II is said to resolve problems associated with Model III, the "individual differences" model. The new version is under review and will be

available to CYBER users within the coming weeks. The ACF writeup, "QMLSCAL", will be updated to reflect changes due to Version II.

The CYBER's version of TSP (Time Series Processor) has been upgraded to Version 3.5G. The upgrade includes corrections to the program, in addition to modifications which increase the efficiency of TSP runs. Minor updates to the ACF writeup "QTSP" will be made to reflect the change.

CYBER users now have SLATEC. Version 1.0 of the SLATEC library of mathematical software is now available on the CYBER. SLATEC contains EISPACK, LINPACK, FC, LSEI, WNNLS, and FISHPACK, as well as special functions from FNLIB, FUNPACK, and AMOSLIB. To gain access to a ULIB of the SLATEC collection, use the command "OBTAIN,SLATEC". Follow this with an appropriate LIBRARY or LDSET statement. Documentation of SLATEC is available for reference in Room 307 Warren Weaver Hall. A writeup will be prepared in the coming months.

Revision of NCAR manual is under way. NCAR is revising the manual set for the NCAR graphics software. The volume called "Selected User Reference Papers" is now completely obsolete, and we have removed it from all ACF reference copies. Other sections apparently are also under revision.

NCAR manual sets can be ordered from the National Center for Atmospheric Research, Scientific Computing Division, P.O. Box 3000, Boulder, Colorado 80307, ATT: Sue Long; (303) 494-5151. A check for $30.00 or a P.O. number must accompany payment. If you order now, NCAR will send you the current version immediately and the revised edition when it is published.

CDC has withdrawn support of FTN: Please convert your FTN programs to FNT5. CDC withdrew support of FTN, the FORTRAN Extended Version 4 Compiler, on June 30, 1983. As a result, CDC will not guarantee that FTN programs will work properly on future releases of the CYBER operating system, NOS.

Although FTN will remain available on the ACF's CYBER system, local support will also be discontinued after September 1984. After that day, ACF consultants will no longer be able to offer help with problems associated with the use of the FTN compiler. We strongly recommend that you develop all new programs in FTN5, and that you convert your FTN programs to FTN5. To convert an FTN program, begin by submitting it to CDC's F45 utility. A copy of the F45 Reference Manual (CDC Pub. No. 60483000) is available in a reference rack in Room 313 Warren Weaver Hall. See the consultants in Room 307 Warren Weaver Hall if you need further help and documentation.

7-track and 9-track 800/1600 bpi tape drives have been removed. To be read onto the CYBER, tapes must now be 9-track and either 1600 or 6250 bpi. The 7-track and 9-track 800/1600 bpi tape drives were removed from the CYBER configuration on October 17. We had previously announced that they would be removed on September 1, but CDC kindly let us keep them for the extra month-and-a-half.

The 7-track tape drive and the 9-track tape drive which supported 800 bpi, were added to the CYBER in November 1982 as temporary, transitional aids to former users of the CDC 6600, so that they could convert any tapes that were not 9-track 1600/6250 bpi.

How to obtain a copy of an ACF writeup for CYBER users. To view a CYBER writeup at your terminal, type "OBTAIN,WRITEUP=docname". For a paper-printed copy, type "OBTAIN,WRITEUP=docname,L=DOCCOP", then "ROUTE,DOCCOP,TID=WWH,DC=PR". Replace "docname" with the document's ACF Document Name (e.g., "IMSL", "QMAIL"), and

"WWH" with "TH" if your output folder is at Tisch Hall. Printed copies of many ACF writeups are also available in Rooms 306 and 307 Warren Weaver Hall and LC-8 Tisch Hall, and at the Operator's Desk at the ACF's 14 Washington Place site.

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For IBM Users

SAS is now at Version 82.3. As of early October, 82.3 has been the default "floor version" of SAS (Statistical Analysis System). SAS Version 82.3 offers two new procedures: TABULATE, which produces hierarchically organized tables of descriptive statistics, and HIER, a procedure for displaying organizational charts and other hierarchical relationships. There is a greatly enhanced macro facility, in addition to a number of marked improvements and enhancements of procedures offered by our previous edition of SAS, 79.6.

Documentation of SAS 82.3 is contained in The SAS User's Guide: Basics and The SAS User's Guide: Statistics. Both can be purchased at the NYU Book Center (lower level). Reference copies are available in Room LC-8 Tisch Hall.

To invoke SAS 82.3, use the instruction "// EXEC SAS". We plan to keep Version 79.6 available for a short time: use "// EXEC SAS#" to invoke it.

TSP Version 4 has been installed; Version 3.5 will be removed from the IBM on 1 April. TSP (Time Series Processor) has been upgraded on the IBM system from Version 3.5 to Version 4.0. Features newly offered with Version 4.0 include a univariate Box-Jenkins procedure and the estimation of AR1 models with PDL variables. There are also many small changes in the dating of time series, in the way one retrieves estimation results, and in the transformations and statistics that are available to users.

Documentation for TSP 4.0 consists of a user's manual which is quite similar to the user's manual for Version 3.5, and a more formal Reference Manual which contains alphabetized descriptions of all available commands. They can be purchased at the N.Y.U. Bookcenter (lower level). A reference copy may be examined in Room LC-7 Tisch Hall.

Many programs that ran successfully under 3.5 are likely to need revision in order to run under 4.0. Users are urged to run programs under both Version 3.5 and Version 4.0, and to report any problems to Bert Holland or George Sharrard in Room LC-7, Tisch Hall (598-7851); the current plan is to remove Version 3.5 from the system around 1 April 1984.

To invoke TSP, use one of the following statements.

```
For Version 4.0:  // EXEC TSP,REGION=676K (for Regular TSP)
                  // EXEC TSP,NAME=BIG,REGION=1104K (for Big TSP)
                  // EXEC TSP,NAME=MAXI,REGION=2232K (for Maxi TSP)
                  // EXEC TSP,NAME=MEGA,REGION=2964K (for Mega TSP)

For Version 3.5:  // EXEC TSP,VERSION=3P5 (for Regular TSP)
                  // EXEC TSP,NAME=MINI,REGION=512K,VERSION=3P5 (for Mini TSP)
                  // EXEC TSP,NAME=MAXI,REGION=812K,VERSION=3P5 (for Maxi TSP)
```

The REGION statements are minimum regions for each version.

LIMDEP is now available. LIMDEP is a collection of programs for estimating parameters of a variety of regression models with limited and/or qualitative dependent variables, of nonlinear regression models, regressions with corrections for nonrandom sample selection, and linear multiple equation models. LIMDEP's procedures fall into the following categories: descriptive statistics, canonical correlations, principal components, classical regression, two-stage least squares, stochastic frontier, gamma regression, nonlinear regression, probit, logit, and tobit models, truncated regressions, grouped data regressions, multivariate regressions, maximum likelihood estimation, and more. Where appropriate, the program provides starting values or permits the user to set them. Transformations and functions of data variables are available too. LIMDEP is structured to accept relatively easy additions and modifications supplied by the user. The program was developed by Professor William H. Greene of G.B.A.'s Economics Department.

ORSIM2 has been installed. ORSIM2 is newly available to users of the IBM at NYU. It is a program written by Huba, Palisoc, and Bentler to perform symmetric and asymmetric orthogonal rotation of canonical variates and interbattery factors. The input to ORSIM2 consists of two matrices of canonical correlation loadings or weights and a vector of the canonical correlations. The output includes separate rotations of each matrix to a simplicity criterion and joint rotations of both matrices. In addition, the program prints Stewart and Love redundancy indices for each matrix, and the unrotated and orthogonally rotated interbattery maximum likelihood factors.

To invoke ORSIM2 on the ACF IBM system, use the instruction "// EXEC ORSIM2". A copy of the ORSIM2 user's manual is available for reference in Room LC-7, Tisch Hall. (The program is also described in an article by Huba, Palisoc, and Bentler in The American Statistician, 1982, 36 (62).)

SETCOR newly available. SETCOR is a FORTRAN program that performs the calculations described in Professor Jacob Cohen's (1982) paper titled "Set Correlations as a General Multivariate Data-Analytic Method" (Multivariate Behavioral Research, July 1982). In this paper, Professor Cohen develops an extension of the more familiar multiple regression/correlation techniques to the multiple dependent variable situation, and describes the impact of partialling out one group of dependent variables from another, in a way that parallels the hierarchical inclusions of independent variables in multiple regression. This added procedure broadens the range of data-analytic capabilities to include such methods as the hierarchical analysis of common and unique aspects of a battery, multivariate contrasts among outcomes, the multivariate analysis of partial variance, and contingency table analysis.

The program reads in either a correlation matrix or a variance/covariance matrix, and produces canonical roots, R square, T square, and univariate multiple regression statistics. The input matrices can be full, or upper triangular. Test statistics produced are Rao's F, Bartlett's chi square, and Pilai's F. The program can be executed with the instruction "// EXEC SETCOR". A list of the commands available for this program can be obtained in Room LC-7, Tisch Hall.

SPSS-X, a new package from SPSS, Inc., is on the IBM. Release 1.1 of SPSS-X has been installed on the ACF IBM and is now available for general use. SPSS, Inc.

has indicated that, in many ways, SPSS-X is quite different from SPSS (Statistical Package for the Social Sciences). In general, programs that have been written for SPSS will have to be modified in order to run in SPSS-X.

For the present, the ACF can offer only limited consultation and advisement on the use of SPSS-X. A local document describing the package is being prepared. Use of SPSS-X on IBM systems is covered in some detail in McGraw-Hill's SPSS-X User's Guide. Copies can be purchased at the NYU Bookcenter (lower level); reference copies have been placed in Rooms LC-7 Tisch Hall and 313 Warren Weaver Hall, and at the Bobst Reserve Desk.

WYLBUR access will be through a port expander. Work is under way to add one or more MICRO800/X.25 "port expanding systems" to the MICOM Port Selector (the "NYU Computer System Selector"). Once the work is complete, most WYLBUR users' access to the IBM system will be through the X.25 port expander, and the number of channels to IBM WYLBUR will be increased. Current plans are to add two port expanders, each of which will contain sixteen ports.

New guide to WIDJET at NYU. The ACF published a new WIDJET user's guide, prepared especially for users of the WIDJET system at NYU's Washington Square campus.

New features of the 54-page guide include two detailed practice sessions which a user can follow at his or her terminal; a chapter containing hints on how to avoid common errors; explanations of common system messages, and recommended responses on the part of the user. There are also several useful new tables and summaries and what we believe is a clearer and more consistent overview of file management and editing under WIDJET.

"Using WIDJET at NYU" was based, originally, on Louisiana State University's SNCC User's Guide which, in turn, was adapted from the University of Waterloo's WIDJET User's Guide. With the permission of Waterloo and the kind cooperation of LSU, we used the LSU guide as our first draft, and revised and added the new features which we felt would be particularly helpful to our local users.

Copies of "Using WIDJET at NYU" are available, in limited number, from the ACF consultants in Room LC-7 Tisch Hall and in Room 306 Warren Weaver Hall. The Spring 1984 edition will incorporate some minor revisions, mostly to reflect the addition of a second WIDJET system (see page 9).

As we were going to press, we learned that LISREL VI will soon replace LISREL V as the default version -- the version invoked with the instruction "// EXEC LISREL". A second item which arrived very recently is the 1983 release of BMDP. Installation will be undertaken as soon as possible. Please watch the online "IBMNEWS" for an announcement of its availability.

NOTE: The items on SAS, LIMDEP, ORSIM2, SETCOR, and TSP were prepared by ACF staff member Bert Holland. They will be available as an online document, "Update on Statistical Packages on the ACF IBM System" (STATUPD). For a printed copy, insert the following statement after your job card: "// EXEC MANUALS,NAME=STATUPD".

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For ACF VAX/VMS Users

Operating system is now at Version 3.4. VMS was updated to Version 3.4 on all VAX/VMS machines accessible through the Port Selector, including ACF1, ACF2, and ACF3 (the ACF "VAXen"). A summary of the differences associated with Version 3.4 is available online. For a printed copy, type "PRINT NYU$AIDS:VMS3.4". To view these extracts from DEC's release notes at your terminal, replace "PRINT" with "TYPE".

(An update from VMS 3.2 to VMS 3.3 occurred during the summer. For excerpts of the release notes associated with that update, consult the online document NYU$AIDS:VMS3.3.)

FORTRAN, PASCAL, and PLIG have been updated. Version 3.4 of the VAX-11 FORTRAN compiler was installed over the summer. The VAX-11 PASCAL compiler was updated to Version 2.2 at about the same time. For online summaries of DEC's Release Notes for these two updates, type "PRINT NYU$AIDS:FORTRAN3.4" and "PRINT NYU$AIDS:PASCAL2.2", respectively. To view them at your terminal, replace "PRINT" with "TYPE". ("PASCAL2.2" also corrects an error in DEC's Pascal Language Reference Manual.)

The VAX-11 PL/I compiler (Subset G), was also updated in the past months, to Version 1.3. The update to Version 1.4 should be arriving fairly soon, and Version 2.0 is expected shortly thereafter.

FORTRAN DEBUG problem and "workaround". DEBUG was found to have a problem in evaluating and/or depositing a FORTRAN REAL*8 expression. DEC expects the problem to be fixed in the next major release of VMS. Both the problem and a temporary "workaround" suggested by DEC are described in the writeup "NYU$AIDS:FORTRAN3.3". (See the item just preceding this one for instructions on obtaining a copy.)

Tape drive argument in GETDRIVE command has changed. There has been a small but important change in the way you select a tape drive when using the command procedure NYU$LIB:GETDRIVE. In the past, if you specified "MT" as the tape drive argument for GETDRIVE, the system would allocate any tape drive that happened to be available at the time. Now, unless you wish to select a specific tape drive, you should use TAPE$1600 -- for 1600 bpi, the density supported by very nearly all computer systems here at NYU. (If you need to read or write a tape with a density other than 1600 bpi, consult the online HELP utility: type HELP TAPES GETDRIVE PARAMETERS).

The command procedure NYU$LIB:GETDRIVE is used, when a tape is being read or written, to request that a tape drive be allocated to a job. NYU$LIB:GETDRIVE takes, as its first argument, your choice of tape drive.

NAG FORTRAN Library is updated. Mark 10 became the default version of the NAG FORTRAN Library on ACF1 and CMCL1 last July. Twenty-eight new primary routines were introduced with MARK 10 and one was deleted. The document FORTRAN MK10 NEWS in the NAG Library Manual lists these routines, in addition to routines scheduled for withdrawal at Mark 11. There is a reference copy of the NAG Library Manual in Room 307 Warren Weaver Hall. FORTRAN MK10 NEWS is also available online in AIDS: type HELP NAG_LIBRARY , and then select the subtopic MARK10.

SPITBOL 3.6 has been installed. SPITBOL Version 3.6 has been installed on all VMS machines. There is extensive online documentation of SPITBOL: type HELP SPITBOL for more information.

SPSS-X is on ACF1. Release 1.1 of SPSS-X (Statistical Packages for the Social Sciences) has been installed on ACF1. For online documentation of SPSS-X, including a description of the package and of many of its new features, type "HELP SPSS". McGraw-Hill's SPSS-X User's Guide can be purchased at the NYU Bookcenter (lower level); reference copies are available in Tisch Hall Room LC-7 and Warren Weaver Hall Room 313.

At present, the ACF offers only limited consultation and advisement on the use of the VAX/VMS Version of SPSS-X. SPSS, Inc. has indicated that, in many ways, SPSS-X is quite different from previous versions of SPSS. In general, programs written for those versions of SPSS will not run on SPSS-X without modifications.

MINITAB 82.1 is available on ACF1 and ACF3. Release 82.1 of MINITAB has been installed on ACF1 and ACF3. MINITAB is a system for statistical computing which enables matrix and vector operations on MINITAB-managed data files or on data stored in files external to the MINITAB system. It has been available on the ACF's CYBER system for some time.

MINITAB provides its own online HELP and NEWS facilities. To use them, simply type MINITAB, and then enter the commands HELP and NEWS. The MINITAB User's Guide and The MINITAB Reference Manual can be purchased at the NYU Bookcenter. Reference copies have been placed in Rooms LC-7 Tisch Hall and 313 Warren Weaver Hall. An AIDS entry on MINITAB is in preparation.

The current version of MINITAB is Release 82.1. A bug causes a notice that this release is "obsolete" to appear when MINITAB is first invoked: ignore it.

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For ACF VAX/UNIX Users

Update of operating system. The UNIX operating systems at NYU were updated to Version 4.2 bsd the last week in October. UNIX 4.2 bsd is a major release. The last major update of UNIX, 4.1, had occurred more than two years earlier.

Details on the update can be found in "Bug Fixes and Changes in 4.2 BSD" in Volume 2c of the UNIX Programmer's Manual. (See the item following this one.)

The casual user of UNIX should not notice much difference between Versions 4.1 and 4.2. For the expert user of system services, however, there is quite a difference. There are new interprocess communication, networking, and filesystem subsystems, and new system calls to support them. The system upgrade was less of a change for users of ACF4 than for users of the other UNIX systems, since ACF4 had been running a preliminary version of the new operating system.

Documentation changes. Volumes 1 and 2c of the UNIX Programmer's Manual have undergone extensive changes with the new version of the operating system, while Volumes 2a and 2b are unchanged. The casual user will probably be able to get by with the 4.1 level of Volumes 1 and 2c, if he or she already has one. Users thinking of upgrading their manual sets for 4.2 bsd, however, are advised to replace Volumes 1 and 2c.

We hope to replace our reference copies with the new editions within the coming month. (The ACF has placed reference copies of the UNIX Programmer's Manual in Rooms LC-8 Tisch Hall, 313 and 1128 Warren Weaver Hall, at the Bobst Library Reserve Desk, and in the CIMS Library.)

Volumes 2a and 2b are now published in book form by Holt, Rinehart and Winston as Volume 2 of the Unix Programmer's Manual. The NYU Book Center has a number of copies in stock and on order. They will be shelved on the Book Center's lower level, near the "Computer Manuals" section.

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Some Additions and Reconfigurations

Expansion of dial-in facility. Over the past few months, we have been working to expand the dial-in facility. The result will be eight more lines supporting 110, 300, or 1200 bps for dial-ins to 777-7600. In addition, eight of the lines used for dial-ins from within the university on the 598 exchange will be replaced so that they are also capable of handling dial-ins at 110, 300, or 1200 bps. This will mean that users on the 598 switchboard will no longer need to make an outside call to get a 1200 bps line. With the eight additional lines to 777-7600, it will be easier for off-site users to get into the switch during busy periods.

While the work was being done, you may have had some difficulty with "switchboard" dial-ins from the 285 and 598 exchanges. We expect that by the time you receive this Newsletter, the work will have been completed and the difficulty resolved. If you were on the 598 exchange, normally you could have accessed the MICOM by dialling either 4141 or 7001. While we were working on them, one or the other may have been temporarily inaccessible. (One of the two lines was always in service.) Users of the 285 exchange will have had to use the outside line to the MICOM (777-7600), until the work was completed.

ACF acquires two more DEC VAX computers. Since the last issue of the Newsletter, the ACF has acquired two new DEC VAX 11/780 computers. "ACF3" and "ACF4" arrived and were installed at the beginning of the fall semester. A UNIX system is being run on ACF4, while the operating system of ACF3 -- like that of ACF1 and ACF2 -- is Version 3.4 of VMS.

There has been a UNIX system, managed by ACF staff members, at NYU for the past few years. EUNICE, a UNIX-like shell, has been offered on several VMS machines for quite some time. ACF4, however, is the first ACF machine to run UNIX exclusively.

Data General system now available at NYU. A Data General MV/8000 was added to the MICOM Port Selector over the summer. The first Data General system at NYU, it was a gift from Data General to the Computer Science Department. This semester, it is being used by CSD classes for coursework. See page 16 for a brief article on NYU's MV/8000.

Second WIDJET system installed. The ACF now has two IBM WIDJET systems. The system offered to users over the past few years has been renamed "WIDJETA". The recently installed "WIDJETB" is controlled by a second new IBM Series/1 minicomputer which arrived in early September, after some delay.

WIDJET (Waterloo Interactive Direct Job Entry Terminal) is a system which enables file editing and job submittal from interactive terminals. The Series/1 controls the terminals and manages the transfer of jobs, output and permanent files to and from the IBM 4341.

At present, 24 terminals are connected to each of the WIDJET systems, with the possibility of expansion should the need arise. By comparison, prior to the installation of WIDJETB, a total of 28 terminals was available to WIDJET users on the Washington Square campus. The presence of WIDJETB and the additional terminals is expected to mean an important decrease of the time that WIDJET users spend waiting for terminals during times of peak usage (after 4 p.m.). Turnaround time is also expected to improve considerably, even during peak hours, since each Series/1 will be supporting fewer terminals than was previously the case.

Reconfiguration of terminals in Room LC-8 Tisch Hall and at 14 Washington Place. The ACF terminals in Room LC-8 Tisch Hall were reconfigured early this semester. Twenty-four terminals were added to IBM WIDJET (see preceding item). All the remaining terminals are now connected to the Port Selector (the NYU Computer System Selector). Each of the DataProducts M200 serial printers in LC-8 now produces output from several computer systems. Together, they serve the CYBER, Data General, ACF1, ACF3, ACF4, CSD1, and CSD 1134. While the CYBER can still be accessed from LC-8 through terminals that are connected to the switch, there no longer are any terminals in LC-8 that are hardwired to the CYBER.

The terminals at 14 Washington Place were increased in speed recently from 1200 to 2400 bps. The 14 Washington Place site is now devoted exclusively to CYBER users: all terminals there are hardwired to the ACF's CYBER system. There are no longer any terminals at 14 Washington Place which can be used for other systems accessed through the Port Selector (or "switch").

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UPDATE OF ACF USER SERVICES

Tutorial Sessions

CYBER tutorial sessions. "Walk-in" tutorials in the use of the CYBER time-sharing system and in the text editor XEDIT were given from September 16 through October 28, Mondays, Wednesdays, and Fridays, at the ACF's 14 Washington Place site (one flight down from street level). The Spring semester schedule for CYBER tutorials will be posted in the online CYBER "News", and on the bulletin boards at all ACF sites.

Specially arranged tutorials. Faculty can arrange tutorials specially for their classes. Call Nancy Gausewitz (598-7851) or Frank LoPresti (598-2993, 460-7176) if your class is using IBM WIDJET; to arrange tutorials on the CYBER or VAX, call Frank LoPresti.

Tutorials in the use of any ACF system can also be arranged for small groups of faculty and staff: call Frank LoPresti (598-2993, 460-7176).

IBM WIDJET tutorials. Copies of the Spring semester schedule of WIDJET tutorials will be posted on the bulletin boards at Tisch Hall. In the fall semester, tutorials in IBM WIDJET were offered during the weeks of September 26 through October 17 in Room LC-8 Tisch Hall.

ACF Talks, Seminars, Lectures

Introductory WIDJET lectures. During the weeks of September 30 through October 21, an introductory level lecture in the use of the IBM WIDJET system was offered on Friday evenings. A schedule of WIDJET lectures is being arranged for the spring semester. It will be posted at the ACF site at Tisch Hall.

ACF Talks and Seminars. Ed Friedman will speak on "Using Graphics Software at NYU", on Thursday, December 22, at 1:30 p.m., in Room 1302 Warren Weaver Hall. The emphasis of the talk will be on the use of the NCAR graphics package on the CYBER and VAX/VMS systems, and of the various graphics output devices (screen, plotter, film, and so on) currently available at NYU.

Mr. Friedman's talk is the last of four which were scheduled for the fall semester. The first, titled "Programmers' and Instructors' Introduction to Interactive CYBER Use and Job Administration Under NOS 2.1", was given on October 13. The ACF's Ed Friedman, David Sullivan, and Eleanor Kolchin discussed such topics as local and permanent file management and job administration techniques. Lou Salkind gave the second ACF talk on November 13. He presented an overview of the new UNIX 4.2 bsd operating system. The third talk, an introduction to the VAX/VMS operating systems at NYU, was given by Stephen Tihor on December 1.

ACF talks are presentations, usually by ACF staff members, on special topics which we believe will interest our users. They are hosted by Frank LoPresti. There will be a new series of ACF talks in the spring semester. Topics and schedules will be announced in the online news and bulletin board facilities, and posted at all ACF sites.

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FOR INSTRUCTORS: GETTING READY FOR THE SPRING SEMESTER

Class Accounts, Computer Registration, and Tutorials

Applications for spring semester "Class Accounts". If you will be teaching a course which will require computer work, your class will need an ACF account. Please file form ACF772 as early as possible. Remember: the spring term starts early this year, and we need to have your class account applications in order to do the appropriate scheduling. Your department secretary should have blank forms; if not, they can be picked up in Room 305 Warren Weaver Hall. Call 460-7427 if you need further information.

Student registration for computer use: DO NOT COLLECT CLASS CARDS. Students will have to register for computer accounts during the first few weeks of the semester. Students registering for the IBM WIDJET system will be required to present their class cards and their "IBM Coursework Account Identification"

cards. All other students will need to show their class cards and their NYU ID cards, in order to register.

If you are teaching a course which involves computer work, please urge your students to register early -- whether or not they actually will begin to use the computer immediately. Please do not collect their class cards until they have registered for computer use. All students will need their class cards to register.

Student registration for the CYBER and VAX systems will take place at 14 Washington Place. Students will register for the IBM WIDJET system in Room LC-8 Tisch Hall.

"Walk-in" tutorials will end early in the semester. If your students are new to the computing system on which your class has its account, please urge your students to attend the ACF's introductory tutorials early in the semester. The ACF's "walk-in" tutorials in the use of the CYBER and in IBM WIDJET will be given only for about a month after classes begin. You may also arrange a tutorial specially for your class. Please see "Update of ACF User Services" (page 10 of this Newsletter) for details.

Additional Notes on User Services and Documentation

ACF writeups for classroom instruction. The ACF will print multiple copies of ACF writeups, upon request, for instructors who wish to distribute them to their classes. Forms and instructions are being distributed to all departments associated with class accounts on the CYBER. Blank forms for requesting multiple copies of writeups can be obtained in Rooms LC-7 Tisch Hall and 306 and 307 Warren Weaver Hall. About a week should be allowed from the time that the request is submitted. For help in selecting a set of CYBER writeups for class instruction, contact Estelle Hochberg (460-7397) or Frank LoPresti (460-7176). The ACF consultants in Room LC-7 Tisch Hall will help instructors choose ACF writeups for classes using the IBM systems; call Bert Holland (598-7851).

Help in selecting manuals as texts. The ACF staff will help instructors decide which CDC, DEC, and IBM manuals, if any, they should have the N.Y.U. Bookstore stock specifically for their classes. Instructors who wish help in selecting manuals for their classes should contact the following ACF staff members to schedule appointments: Frank LoPresti (460-7176), for classes on the CYBER; John Hailu (598-7851), for the IBM; Stephen Tihor (460-7289), for the VAX.

Help in "customizing" CYBER for classes or groups using the system. Under the CYBER's new operating system, instructors are able to design a "computing environment" which is tailored to the styles and needs of their students and the computing tasks which their course requires. User Services staff members will help.

If you are interested, call Frank LoPresti (598-2993, 460-7176) for an appointment. He will discuss with you the feasibility of creating procedures which "customize" the environment for your class. Simple procedures of this kind have been written for classes using Minitab and APL.

* * *

A PREVIEW OF NOS 2.2, THE NEXT VERSION OF THE CYBER'S OPERATING SYSTEM

The CYBER's operating system, NOS, will be updated from the current version, 2.1, to Version 2.2 some time within the coming months. At present, the update is scheduled very tentatively for mid- or late- January. The exact date, however, will depend on factors under consideration as we go to press (see the item on page 1 of this issue of the Newsletter). The following preview touches upon some of the features of NOS 2.2 which will interest CYBER users. Watch the online CYBER "News" for more information about the upcoming version of NOS.

Full Screen Operations

NOS Version 2.2 will bring a very powerful and exciting set of enhancements which come under the general heading of "screen operations". Most of these are available to CYBER users for the first time as a result of the release of NOS 2.2. One, a full-screen editor, has had limited availability for several months, but in a preliminary version with less power and considerably less efficiency than the version which will accompany NOS 2.2. Other screen operations, although released with Version 2.2, have been superimposed on our present operating system, NOS 2.1, and are available now. Screen formatting, for example, allows users to do many things which they have not been able to do easily with any ACF system until now. Screen mode, similarly, has been made available locally under our current operating system, although officially released with NOS 2.2.

Full-screen editing will be available. For many users, the most exciting feature of NOS 2.2 will be CDC's Full-Screen Editor (FSE). A preliminary version of FSE has been available on the ACF's CYBER system for several months, primarily for use and preview by ACF staff, and for faculty and research personnel in the FRCC "family". Response has been enthusiastic. The official FSE which arrives with NOS 2.2 is a faster, multiuser version. It will be made available to all CYBER users and will be usable on Z19, Z29 and VT100 terminals, or on terminals which can emulate any of these. We also plan to provide a local modification which will enable use of the screen editor on ADM 3a's. (At present, most of the terminals at the ACF's student work area, 14 Washington Place, are ADM 3a's.) Documentation will include an introductory writeup and an online tutorial, in addition to CDC's FSE User's Guide and online HELP files. Watch CYBER "News" for more about these.

Screen mode. NOS Version 2.2 distinguishes between line mode and screen mode. Users of NOS under versions preceding 2.2 are already familiar with line (or "scrolling") mode. In line mode, the basic unit of interaction between the system and your terminal session, or job, is a line of data. That is, your commands and other information are sent to the system line by line; similarly, the system's responses are sent in lines of information. In screen mode, the basic unit of interaction is a screen of data.

Two new interactive commands allow you to switch between screen and line modes. The SCREEN command tells the system that your terminal is to be operated in screen mode, when possible, while the LINE command specifies that your terminal is to be in line mode. The LINE and SCREEN commands can be incorporated in CYBER Command Language (or CCL) procedure files -- so that, for example, you can be put into screen mode immediately upon logging in, or switched into and out of line mode to accomplish part of a sequence of tasks.

Screen formatting. This new feature enables full-screen input and output for your NOS CCL procedures, and for your FORTRAN5 and COBOL5 programs, as well. In effect, screen-formatting allows you to design screens which users can read and fill out much as they would forms or, perhaps, self-study workbooks. The user can type information into these fields and modify it in any order until he or she is satisfied that all entries are correct. (The "user" can be you, members of your group, your students, and so on.)

Existing procedures will need no modification to be used with full-screen prompting and other screen-formatting features. With FORTRAN5 and COBOL5 programs, the programmer must design "panels", the full-screen displays which prompt the user and on which the user enters his or her information. These panels are managed by a Panel Definition Utility, or PDU. This and other aspects of screen formatting are described in CDC's NOS Screen-Formatting Reference Manual (Pub. No. 60460430). Copies are on order and should be available in ACF reference racks by early January.

User Control of Computer Environments and Job Processing

Prologues and epilogues. These are special programs which can be set up by a master user. They can be used to ensure that every time an account is started up (or ended) under that project number, a set of procedures written or selected by the master user will be executed. A master user with one project on which all users were novices, for example, might arrange a prologue which constrains the kinds of operations which could be performed for the first few weeks. Similarly, an epilogue which stored permanent copies of primary files (possibly under some temporary name) might be useful for beginners, or one which automatically ROUTEd a copy of each session's dayfile to a line-printer.

Users will be able to assign Service Classes to their jobs. A new feature, User Service Class Assignment, will allow you to select the class of service which you wish the operating system to give to each of your jobs and queued files. The new command CLASS causes a list of service classes to be displayed on the screen, along with the priorities assigned to them at the time of your inquiry. You will then be able to select a class which will give you faster service or, possibly, lower charges.

Your account will have a default service class associated with it -- a class under which all your jobs will be run if you specify no other. This default will be displayed when you type the command LIMITS. You will be able to set a new default, at will, by means of the command CHVAL.

Online Manager of Documentation -- Both Yours and Ours

CONTEXT is a new facility which can be used to store and handle online documentation databases. These include documentation that has been placed on the system by the ACF as well as any that you might wish to create for yourself, your group, or your class. You prepare this documentation as a file consisting of sequential screens-full of text (24 lines each). To each screen-full, you add directives which indicate to the utility where the screen should occur in a hierarchical perusal of the file, key-words which would locate this screen for a user making a search of your documentation by subject, and so on. You can arrange a file so that it contains one or many documents. Your screens can contain "menus" which offer you a selection of documents -- and you can arrange the text and directives so that selecting a menu item will place you or another user into the appropriate section of your hierarchically arranged document.

At present, documentation of CONTEXT consists of an online manual. To examine it at your terminal, type EXPLAIN,M=CONTEXT, and then follow the instructions that appear on your screen.

CONTEXT has been available on the ACF's CYBER system for several months. The only shortcoming of this version of CONTEXT is the absence of a utility for obtaining paper-printed versions of the online documentation. We hope to be able to provide a utility for obtaining hard copy output sometime during the spring semester.

We have begun work on the ACF's documentation for CYBER users so that it can be managed and viewed by means of CONTEXT. There is a great deal to be converted to the new system, and we will let you know as progress is made. (ACF documentation at present can be retrieved online by means of the locally written OBTAIN utility. See the Information and Directory at the end of this Newsletter for instructions.)

* * *

Comments Invited

If you have any comments, suggestions, or queries, please mail them to Estelle Hochberg, Editor, ACF/NYU Newsletter, 251 Mercer Street, New York, N.Y. 10012. Please mark the letter "For Inclusion In Newsletter". All letters will be read. Those of general interest will be considered for publication in the next issue of the Newsletter.

INTRODUCING THE DATA GENERAL MV/8000

The "new kid on the block" at the Academic Computing Facility is the Data General MV/8000. Actually, the MV/8000 was a gift from the Data General Corporation to the Computer Science Department, and has been here for roughly a year. This fall semester, however, marks the first time that student accounts for course work have been placed on it. Up until now, the MV/8000 has seen work from only a very small number of researchers and from a few of the Academic Computing Facility's Systems Staff members.

The MV/8000 is the machine that was made famous (or infamous) by Tracy Kidder's Pulitzer Prize-winning book, The Soul of a New Machine. It is from that book that the nicknames for the MV/8000 have been derived: "The Eagle", which you will remember from Kidder's book, and "Sam", our local nickname (after a blue eagle on "The Muppet Show").

"Sam" runs the Data General Advanced Operating System/ Virtual Storage (AOS/VS), and has compilers for FORTRAN (F77), Pascal, and C, as well as a RATFOR preprocessor and associated software tools. AOS/VS is not like any other system here at NYU. If pressed to name an analogous system, I would say that the AOS/VS is something like a simplified hybrid of the UNIX(tm) and the VMS systems.

Access to the Data General is through the MICOM Port Selector (the "NYU Computer System Selector"). Currently, there are 24 lines connected to the MICOM, ranging in speed from 300 baud to 9600 baud. There are no direct lines into the Data General. At present, there are remote printers in Rooms 318 and 426 Warren Weaver Hall, in Tisch Hall Room LC-8, and in the Courant Experimental Computer Science and Robotics Laboratory at 715 Broadway. The main printer is in Room 312 Warren Weaver Hall.

Performance of the MV/8000 is said to equal that of a VAX 11/780. Local use has not yet been heavy enough for a comparison to be made, however. It is probably safe to assume that the performance is close to a VAX 11/780, since that is the machine which the "Eagle" was built to compete against.

The system has an online help facility: you can see the list of topics by typing HELP, while typing HELP *COMMANDS will give you a list of all AOS/VS commands. Some of the compilers also provide online help.

There are several short, locally produced guides which address various aspects of the Data General and its implementation at NYU. These include "Introduction to the Data General at NYU" (DGINTR); "Data General Command Summary" (DGCOM); "AOS/VS Pascal on the Data General" (DGPAS); "AOS/VS C on the Data General" (DGC); "Notes on the Line Editor ED" (DGED); "ED Command Summary" (DGEDCOM); and "ED Tutorial", an introduction to the editor and self-teaching guide (DGEDTUT). Copies of these writeups are available in Rooms LC-8 Tisch Hall and 306, 307 and 1128 Warren Weaver Hall.

AOS/VS manuals published by Data General have been placed in reference racks in Rooms LC-8 Tisch Hall and 1128 Warren Weaver Hall (the Computer Science Department Help Room) and at the Bobst Library Reserve Desk.

- David Sullivan

ACADEMIC COMPUTING FACILITY
Courant Institute of Mathematical Sciences
New York University
251 Mercer Street
New York, N.Y. 10012

Director: Professor Max Goldstein
Assistant Directors: Ed Franceschini, Terry Moore
Accounts Manager: Anna Moore
Administrative Assistant: Barbara Kissner
Newsletter Editor: Estelle Hochberg

IN BRIEF: SELECTED FACILITIES AND TELEPHONE NUMBERS

(For details on these and other facilities,
see our Directory on the following page.)

Accounts and General Information			460-7427	(305 WWH)
Consultants				
For students:	CYBER		460-7176 or 598-2993	(14 WPL)
	CYBER, IBM			(LC-7 TH)
For faculty and staff only:	CYBER, VAX/VMS		598-3970	(307 WWH)
			460-7398	(307 WWH)
	CYBER, IBM		598-7851	(LC-7 TH)
Dial-in	From 598 exchange	All	Dial extension 7001	
		All	Dial extension 4141	
	From 460 exchange	All	Dial extension 7381	
	From 285 exchange	All	Dial extension 6272	
	From off campus	All	Dial 777-7600	
Equipment Problems	460-7414 (WWH only. See Directory for other sites.)			
Computer Operators	WWH	460-7170		
	TH	460-7174 (LC-14), 460-7175 (LC-8)		
	14 WPL	460-7176		
Systems Status	CYBER, VAX/VMS, VAX/UNIX		460-7285	(recorded message)
Tape Librarian	CYBER, VAX/VMS, VAX/UNIX		460-7155	
	IBM		598-7901	
Tutorials	(arranged on request)	WIDJET	598-7851	
		CYBER, IBM or VAX/VMS	460-7176	
User Work Areas	Mon - Fri 9 a.m. to midnight, Sat 9 a.m. to 4:45 p.m.			

KEY and STREET ADDRESSES

WWH : Warren Weaver Hall, 251 Mercer Street
TH : Tisch Hall, 40 West Fourth Street
14 WPL: 14 Washington Place
Bobst : Bobst Library, 70 Washington Square South

DIRECTORY

Accounts 305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7427

Administration and General Information
305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7427

Dial-Up Numbers (See previous page for further details.)

From:	System:	Use:	
Off campus	All	777-7600	
598 Centrex	All	7001	
	All	4141	(from NYU ONLY)
460 "	All	7381	
285 "	All	6272	

Documentation

ACF/NYU Newsletter is mailed to holders of Individual Accounts on the CYBER, IBM, or VAX. Inquiries: Estelle Hochberg, 306 WWH.

ACF Introduction and Directory, for holders of Individual Accounts: single copies are available in Rooms LC-7 TH and 305, 306, and 307 WWH.

Bookstore (N.Y.U.), 23 Washington Place, stocks commercially published software manuals. Inquire at information desk, lower level. Computer tapes are sold at stationery counter.

ACF Writeups, CYBER: Use "obtain(writeup=qindex)" for information.
" " IBM: Batch, use "// exec manuals,name=index", after your jobcard. WYLBUR, type "u wyl.pb.pub.manual.index", then "list".

Limited supplies of ACF guides and manuals are also distributed from 14 WPL, operators' desk, Mon - Fri, 9 a.m. to 10 p.m., Sat 9 a.m. to 6 p.m.; TH Room LC-7, Mon - Sat, 10 a.m. to 5:30 p.m., 598-7851.

Multiple Copies of ACF Writeups for Classroom Use: Estelle Hochberg, 306 WWH for CYBER; consultants, LC-7 TH, for IBM. (Please allow about a week. Blank forms for CYBER writeups can be obtained in 306 WWH or LC-7 TH.)

On-Line Help Utilities (CYBER, VMS/VAX, IBM WYLBUR): Type "help", strike return key.

On-Line News Bulletins are important sources of information on systems and operations, training sessions, new documentation, user and programming hints, and so on.

CYBER News: Use "obtain(writeup=news)" for time-sharing or batch. Replaced weekly.

IBM News: Updated as needed. Batch, use "// exec ibmnews". WYLBUR, type "u wyl.pb.pub.ibmnews(current)", then "list"; or type "help ibmnews".

VMS/VAX BBOARD: Type "bboard"; strike return key to list each message; type "help" for further instructions; type "exit" to quit.

Reference Copies of Manuals: 14 WPL, TH Room LC-8, WWH Room 317; selected CYBER and VMS/VAX manuals are also available at the Bobst Library Reserve Desk (instructor is listed as "Computer"), the CIMS Library, and the Computer Science Department's Help Room (1128 WWH). For CYBER, type "obtain(writeup=reflist)"; for VMS/VAX, use "print nyu$lib:vaxman.doc".

(CONTINUED on following page)

Equipment Problems at 14 WPL Site Supervisor
at TH " " , Room LC-8
at WWH Operations Personnel, Room 312, or 460-7414
ACF Terminals at Other Locations: 460-7414

Street Addresses Warren Weaver Hall: 251 Mercer Street
Tisch Hall: 40 West 4th Street
Bobst Library: 70 Washington Square South

System Status CYBER, VAX: 460-7285 (recorded message)

Tape Librarian:

CYBER,VAX	460-7155
IBM	598-7901

Tape Purchase:
NYU Bookstore
stationery counter

Tape Questions and Requests:
CYBER,VAX 460-7155 IBM 598-7851

Terminal Problems (ACF equipment only): See Equipment

User Services

Student Advisement
CYBER: 14 WPL 460-7176 CYBER,IBM: TH Room LC-7
598-2993

Consultants
CYBER: TH Room LC-7 598-7851 IBM: TH Room LC-7 598-7851
WWH Room 307 598-3970
460-7398

Hours for Consultants and Student Advisers are posted at 14 WPL, WWH outside Room 305, and TH Room LC-7.
See the CYBER writeup CONSULT for advisers' hours.

User Work Areas Mon - Fri 9 a.m. to midnight, Sat 9 a.m. to 4:45 p.m. *
(Note: WWH facilities are for faculty and researchers only.)

CYBER: Interactive terminals, self-service printers
14 WPL, TH Room LC-8, WWH Room 317; Bobst B-level *
Card readers TH Room LC-14, WWH Room 312
Keypunches TH Room LC-14, WWH Room 310
Output folders (high speed printers)
TH Room LC-14, WWH Room 312

VAX: Interactive terminals, self-service printers
TH Room LC-8, WWH Room 317; Bobst B-level *
Output folders (main printer) WWH Room 312, TH LC-14

IBM: Interactive terminals
WYLBUR TH Room LC-8, WWH Room 317, Bobst B-level *
WIDJET TH Room LC-8
Card reader TH Room LC-14
Keypunches TH Room LC-14 Output folders TH Room LC-14

* The ACF terminals on the B-level of Bobst Library are available during all library and study-hall hours. There are no printers at Bobst.

Key WWH: Warren Weaver Hall; 14 WPL: 14 Washington Place; TH: Tisch Hall.

Graphics Contributions

In each issue of the Newsletter, we include plots and other samples of graphics output contributed by our users and, occasionally, by our staff. Our purpose in publishing these contributions is to illustrate the ways in which some of the graphics software and output devices offered by the ACF are being applied.

On the inside back cover. The plots on page 21 were contributed by Daniel Szyld of New York University's Institute for Economic Analysis (IEA). They were extracted from "The Impacts of Automation on Employment, 1963-2000", the report of a study performed at IEA under the direction of Wassily Leontief and Faye Duchin (National Science Foundation grant #PRA-8012844).

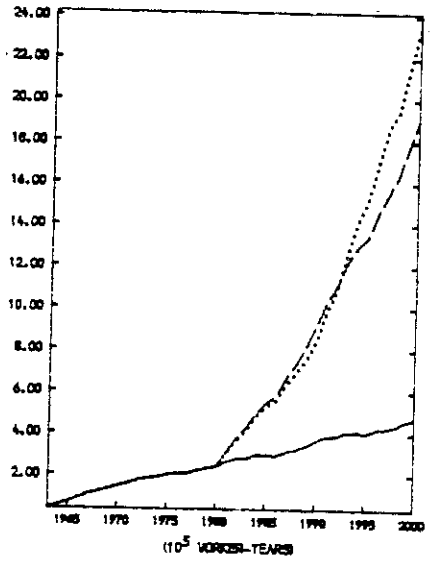
As part of the study, a dynamic input-output model was used to project employment patterns over a range of occupations and industries. The model was prepared using government data for the years 1963 - 1977, as well as data from a number of sources projected through the year 2000. The plots which we selected illustrate results for four occupational groups: computer programmers, computer systems analysts, bank tellers, and health technologists. Each figure shows the projected number (in 100 thousands) of workers employed in one of these three occupational groups. For the years 1980 - 2000, they graph how these numbers might change, given each of three different "scenarios", or sets of hypotheses.

The base or reference scenario, represented by a solid line, assumes that the kind, quality and variety of automation available to industry remain fixed as they were in 1980, while demand for automation continues to grow at a rate predicted from its growth during the years 1963 - 1977, and from other technical considerations, as well.

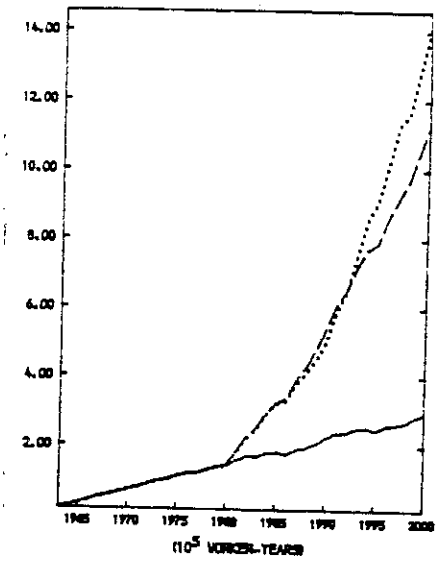
The other two scenarios (dashed and dotted lines) assume that further technological progress occurs during 1981 - 2000 and that, as technologies become available, they are adopted more readily than was the case in 1963 - 1977. The scenario represented by the dotted line assumes the fastest technological progress and an even more rapid adoption of technologies as they become available.

Dr. Szyld and Dimitri Turchin used the graphics package DIMFILM on the ACF's CYBER system to produce these plots. The figures were output on the ZETA plotter.

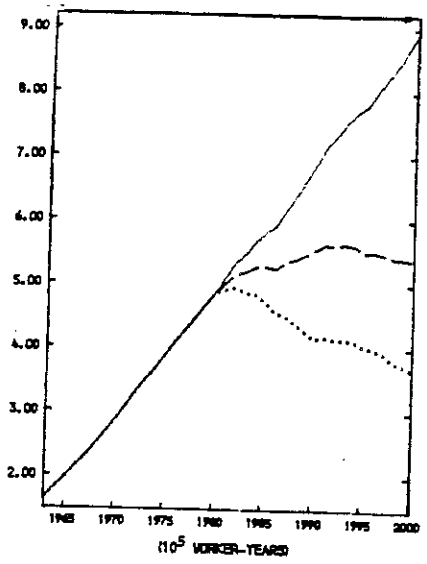
Cover design includes an ARTSPEAK illustration, courtesy of Prof. Henry Mullish of the Computer Science Department. It was produced on the ACF CYBER system, and output on the ZETA plotter.



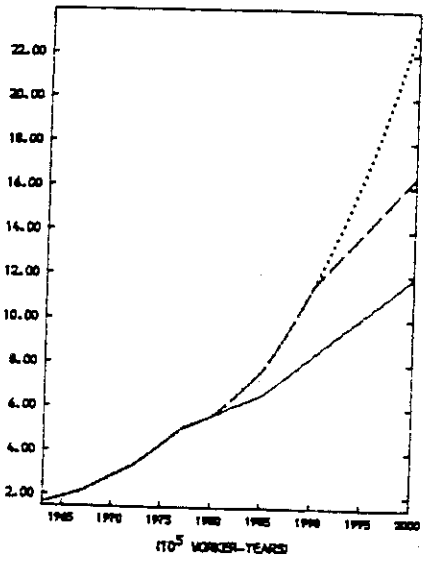
COMPUTER PROGRAMMERS



COMPUTER SYSTEM ANALYSTS

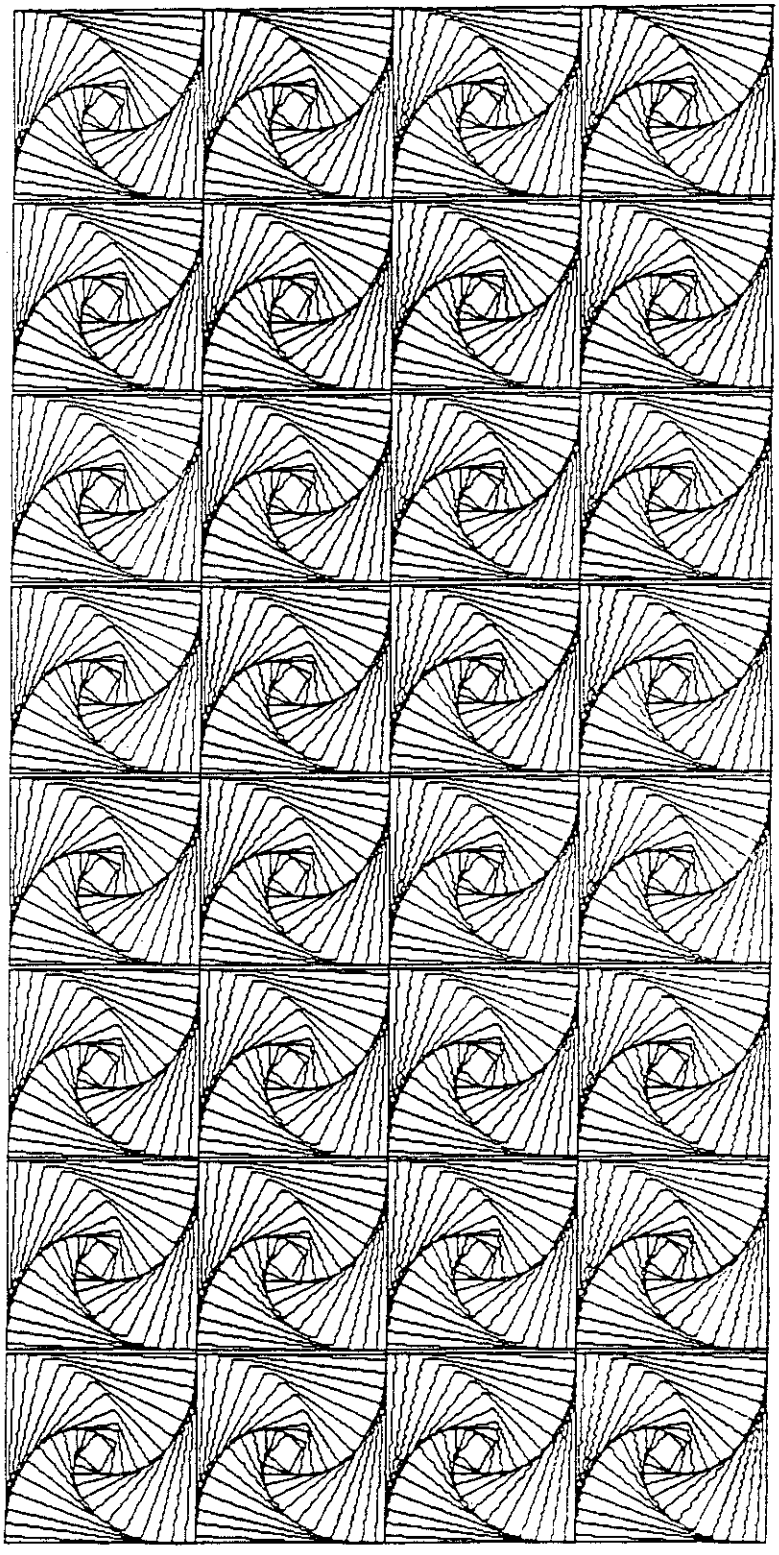


BANK TELLERS



13-HEALTH TECHNOLOGISTS

New York University, CIMS
Academic Computing Facility
251 Mercer St.
New York, N.Y. 10012



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